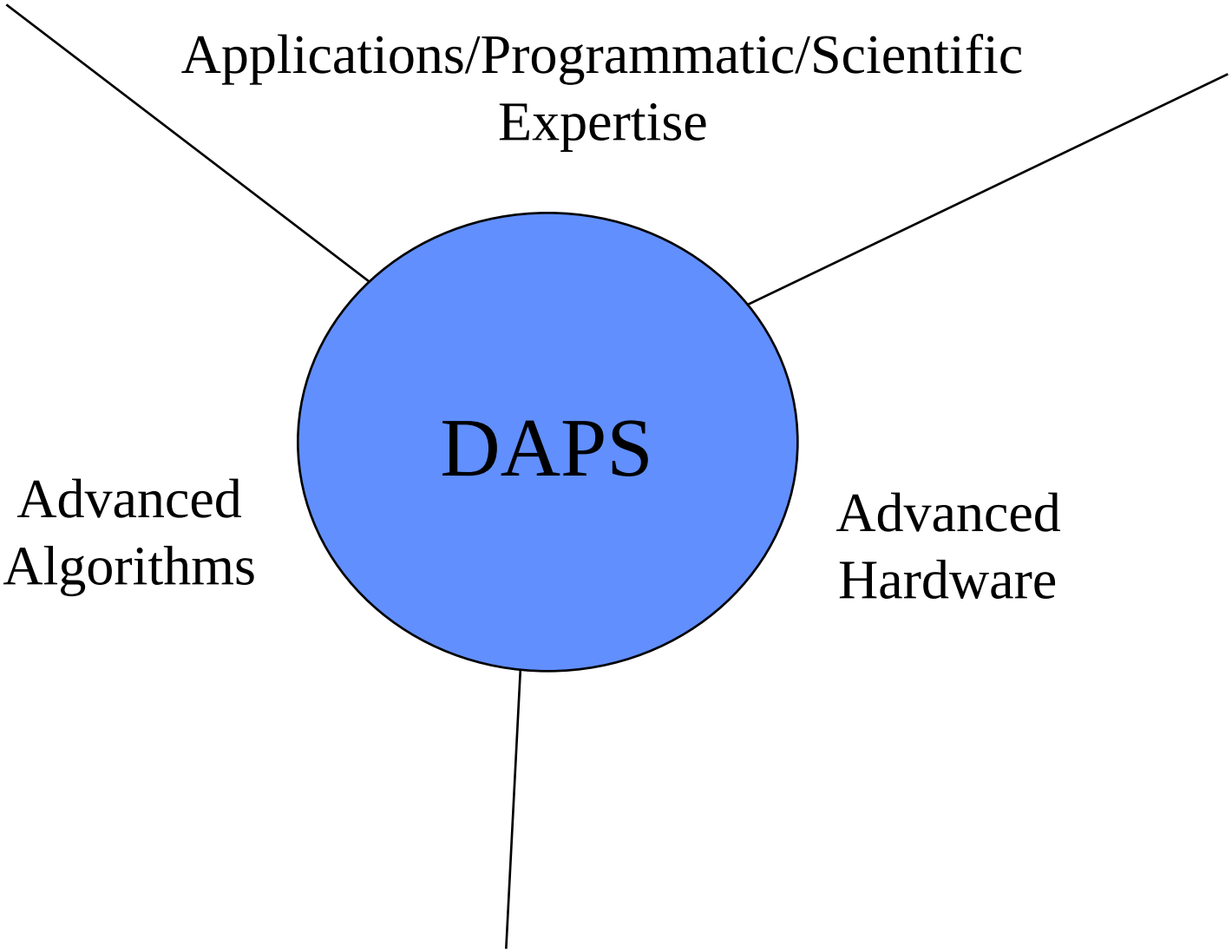
What are the characteristics of a DAPS Project?

A DAPS project must have most or all of the following characteristics:

- *No one else can do it cheaper, or has already done it, or wants to...*
- *Project goal has high visibility, large national need, and/or science impact.*
- *Raw data is cheap (Not High Energy Astrophysics where every photon is precious...), i.e. losing one integration is no big deal...*
- *All the raw data must be examined in real time for the answers of interest. No time for constant re-analysis of an ever growing raw archive. (Real Time may also imply the timescale for archive retrieval and display for existing datasets.)*
- *Raw data can't be archived due to volume/bandwidth*
- *There is at **least** a factor of 10 reduction between the sensor bandwidth and communication link bandwidth to the user.*
- *Solution requires innovative application of hardware/algorithms/software.*
- *Solution has multidiciplinary future applications.*

DAPS Occupies a Unique Niche in Parameter Space



What is DAPS?

1. **Deployable Adaptive Processing Systems**

   "Advanced Algorithms on Deployable Processing Systems coupled to Advanced Sensor Technology"

   • Deployable ==> Portable, Transportable, Low Cost, Robust, Readily Available, Many Deployment Platforms: Satellite, Aircraft, Ground, Ocean. Also implies readily available interfaces, host platforms, and communication pathways. Rapid Prototyping! Rugged. End-to-End Architecture. High degree of re-usability between projects.

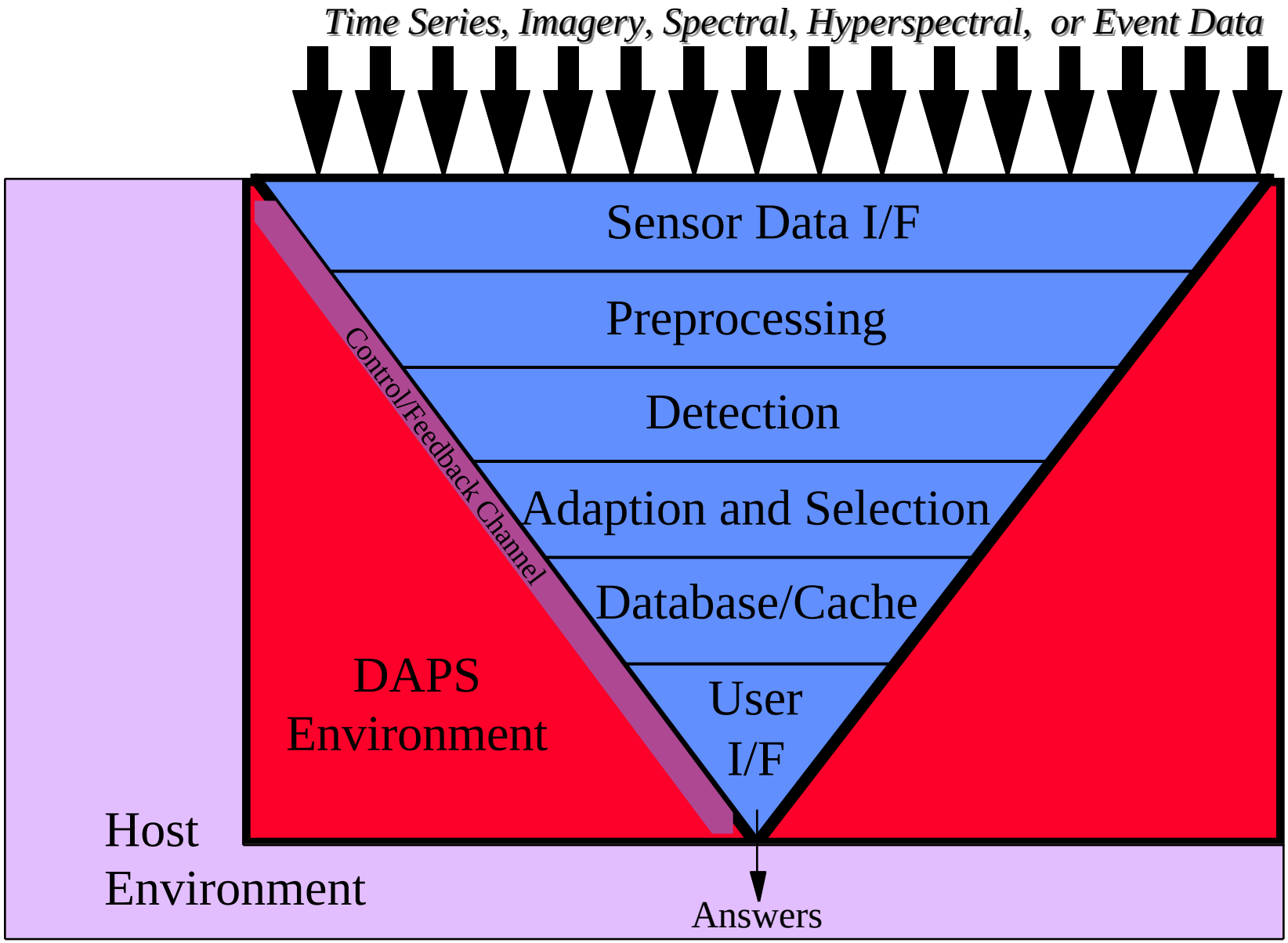
   • Adaptive ==> Changes to varying conditions, autonomously and under user control. Flexable. Reconfigurable. Changes in system coupled to environmental changes.

   • Processing Systems ==> Raw signals ---> Question?/Answer./Decision!

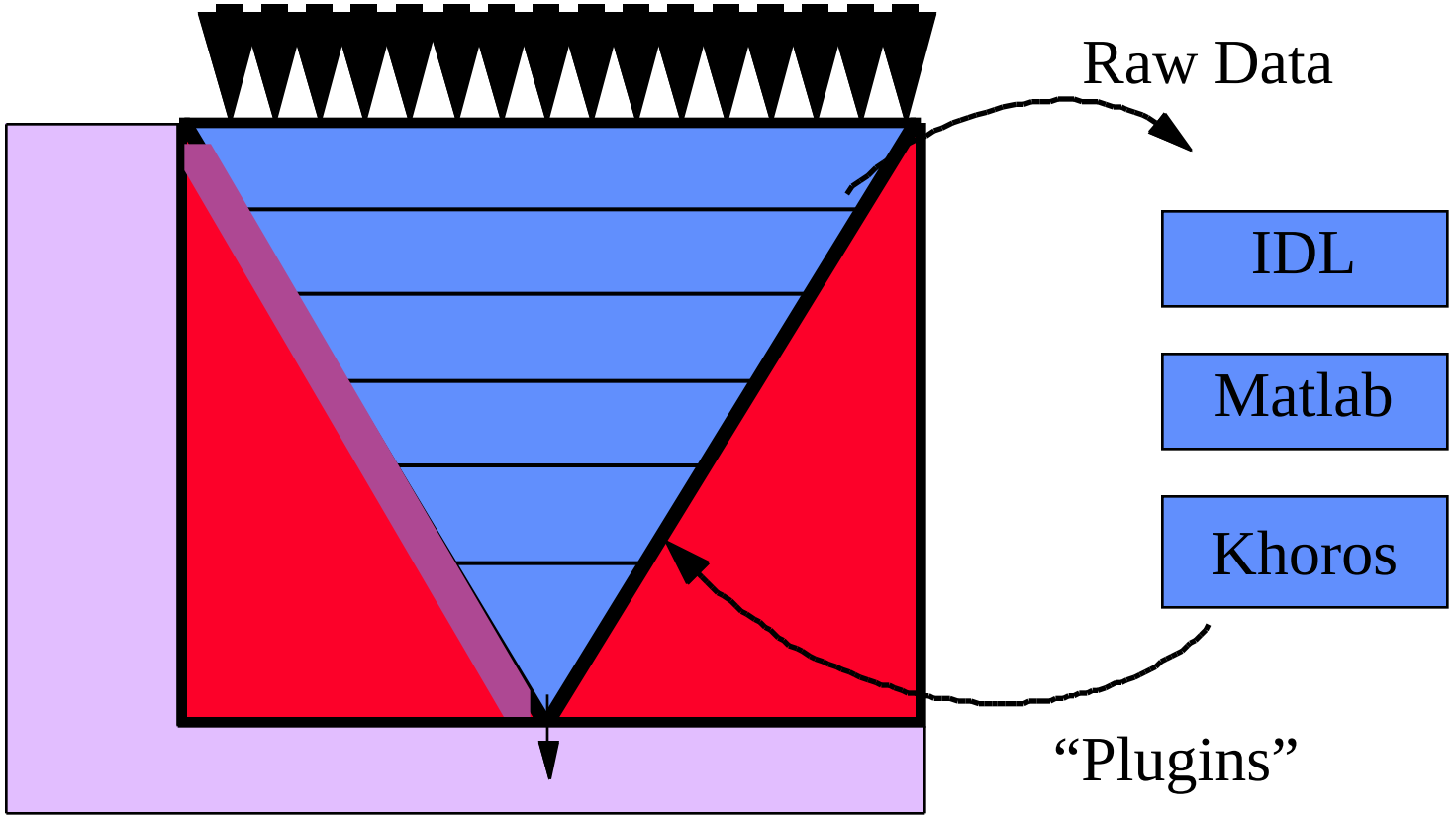
2. **"Concurrent Information extraction from massive volumes of sensor data solving intractable intellegence or non-proliferation problems."**

   • Massive Volumes == Single sensor/High Bandwidth or Many small bandwith sensors

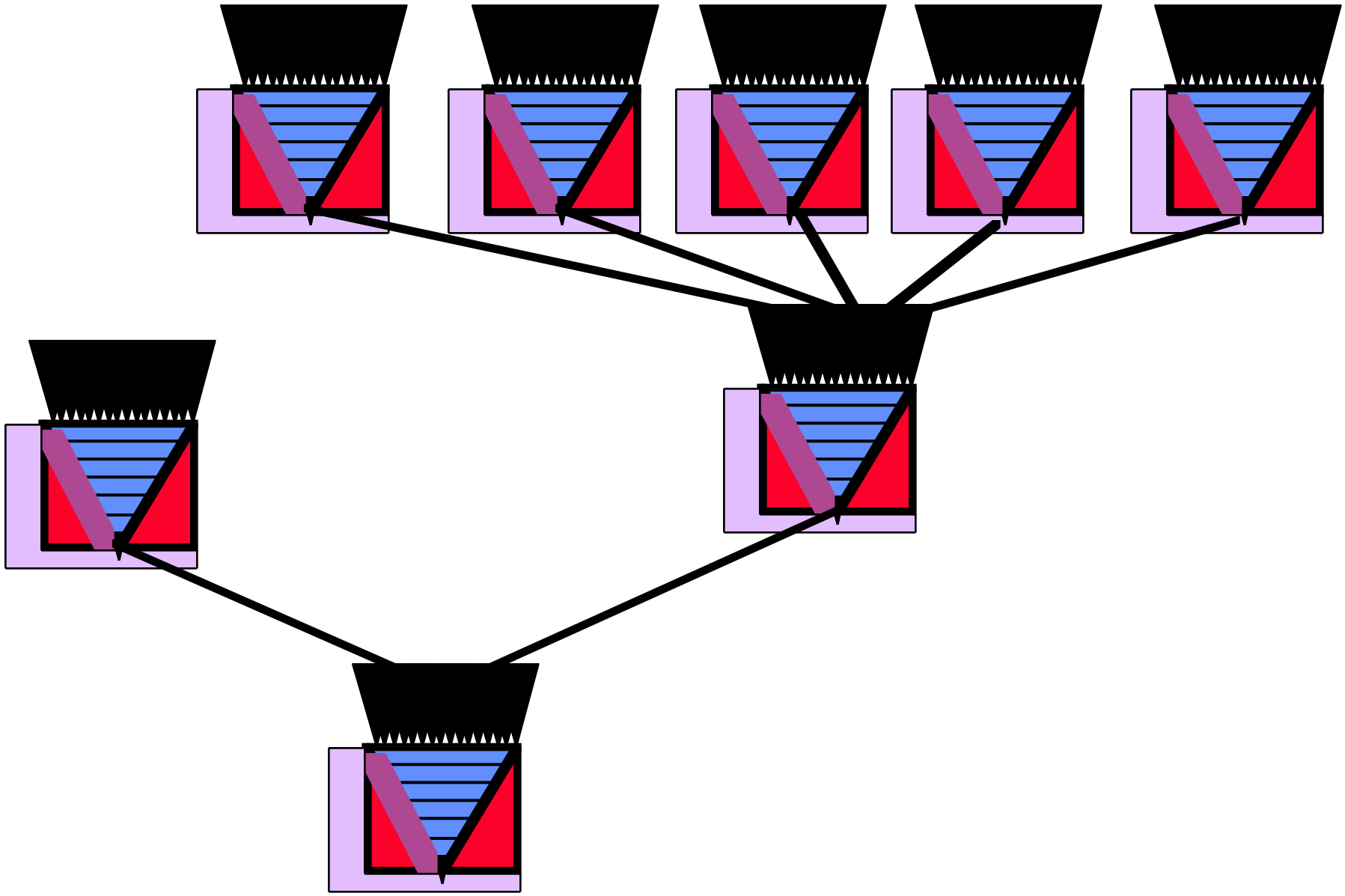
DAPS Espresso Paradigm



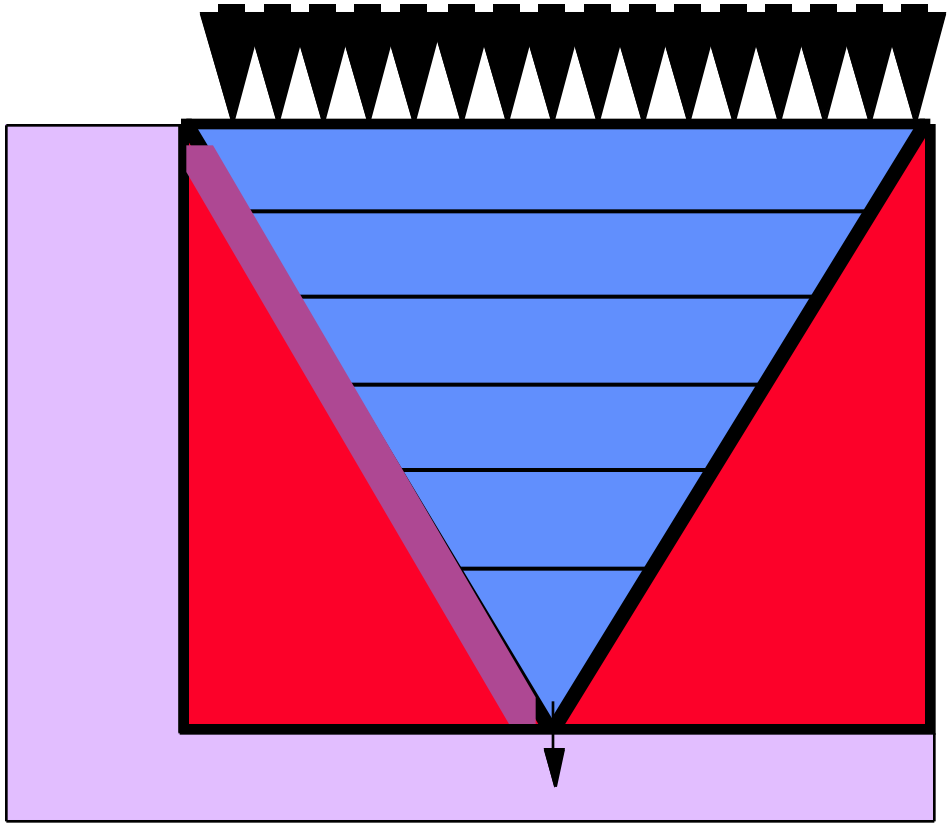
Algorithm Development Occurs Outside of the DAPS Environment



DAPS Should Have a Cascadeable Architecture



DAPS Interface Standards



Each bold line is a “virtual”, well defined interface. It may be a high speed bus, a fiber optic link or ethernet link, or it may reside totally in the software realization of the host environment. These interfaces will be developed as needed.